



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/933,301	08/20/2001	Charles A. Thomas	2006.2	5679

7590 12/19/2002

Robert H. Hammer III P.C.
Suite 250
13777 Ballantyne Corporate Place
Charlotte, NC 28277

EXAMINER

WACHTEL, ALEXIS A

ART UNIT

PAPER NUMBER

1771

DATE MAILED: 12/19/2002

5

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/933,301

Applicant(s)

THOMAS ET AL.

Examiner

Alexis Wachtel

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Detailed Action

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1,5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,299,602 to Barbeau et al in view of US 5,560,990 to Ilg et al.

Barbeau et al discloses a textile material used as a shell in firefighter garments. The textile material is a weave having warps made of multifilament aramid yarns and wefts made of multifilament aramid yarns and spun aramid yarns (Abstract). Polybenzimidazole and aramid are described as functionally equivalent in the fire resistant fiber utility (Col 4, lines 14-17). The weave is a twill weave (Col. 3, lines 6-7). By using multifilament yarns and spun yarns, a fabric can be obtained having excellent slip between said fabric and another textile, as well as improved abrasion resistance. The slipperiness of the fabric increases the flexibility of and mobility of garments made from such a fabric thereby ensuring greater comfort to the wearer (Col 1, lines 34-43). Examiner notes that reducing the amount of multifilaments ultimately leads to less flexibility and less comfort for the wearer.

Barbeau et al as set forth above fails to teach that the spun aramid yarn can be made of a blend of Melamine formaldehyde and aramid staple fibers. Ilg teaches a fiber

Art Unit: 1771

blend made of aramid and melamine formaldehyde (Col 1, lines 25-31). The aramid fibers and melamine formaldehyde fibers are provided in staple form and spun into yarn (Col 2, lines 30-50). Melamine formaldehyde fibers are nonflammable, flame resistant, heat resistant and used for this reason in fire resistant fabrics (Col 1, lines 10-16). Since melamine formaldehyde affords great fire resistance to a yarn and aramid provides fire resistance as well as tenacity, and Ilg teaches the concept of using spun fiber blends, it would have been obvious for one of ordinary skill in the art to have made use of the melamine formaldehyde/aramid blend spun yarn instead of the aramid spun yarn disclosed by Barbeau et al motivated by the desire to make use of a yarn having great fire-resistance as well as tenacity and abrasion resistance.

In addition, since Ilg teaches the desirability of using dual blend spun fibers and Barbeau et al has disclosed above that aramids and PBI are functionally equivalent, having utilized a blend of PBI and aramid fibers is clearly enabled.

Regarding claim 7, the reference as set forth above fail to linear density of the multifilament yarns. However, since the linear density of a yarn is directly proportional to a yarn's tenacity and inversely proportional to said yarn's flexibility, having used the claimed linear density range would have been obtained through the routine use of experimentation in an effort to find the optimal balance between strength and flexibility.

5. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,299,602 to Barbeau et al in view of US 5,560,990 to Ilg et al and Applicant's Specification.

Art Unit: 1771

The references as set forth above fail to teach the spun yarn's cotton count or claimed weight of the woven fabric. Applicant freely admits that fire proof fabric shells generally are woven from 16/2 c.c. or 32/2 c.c. spun yarns wherein appropriate fabric weights include 7.0 OSY (Specification, pp.2 , paragraph 3). Since the cotton count is a measure of a yarn's linear density, and the a yarn's linear density correlates with fiber thickness and strength, it would have been obvious for one of ordinary skill in the art to have optimized the strength and thickness of the spun yarn through the process of routine experimentation. In addition, it would have been obvious for one ordinary skill to have used a known fabric weight motivated by the desire to make use of a fabric parameter known to perform successfully in its intended utility.

Allowable Subject Matter

6. Claims 2,3 and 9-16 are found to be allowable. Following is a statement providing reason for allowance: Regarding claims 2 and 3, it would not have been obvious for one of ordinary skill to have provided the claimed weight ratio of multifilament to spun yarns since no cited prior art has been found to suggest the desirability of incorporating a greater ratio of abrasion prone spun yarns to abrasion proof multifilament yarns. Examiner believes that using less multifilament yarns will ultimately result with a fabric having less abrasion resistance. Regarding claim 9, no prior art has been found to teach or suggest the claimed insert ratio of multifilament to spun yarns in the warp and weft directions. In particular, no prior art has been found to teach the desirability of such a ratio. There would have been no motivation to have used Applicant's claimed insert ratio without relying on hindsight.


Art Unit: 1771

Conclusion

7. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Alex Wachtel, whose number is (703)-306-0320. The Examiner can normally be reached Mondays-Fridays from 10:30am to 6:30pm.

If attempts to reach the Examiner by telephone are unsuccessful and the matter is urgent, the Examiner's supervisor, Mr. Terrel Morris, can be reached at (703) 308-2414. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


TERREL MORRIS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700